Dr. Vincent McDonell is a Professor in the Department of Mechanical and Aerospace Engineering at UC Irvine and is Director of the UCI Combustion Laboratory. He has over 30 years of experience in the design, operation, and characterization of continuous combustion systems and associated components, which has been documented in over 100 journal publications and over 200 papers. He has developed and evolved extensive experimental facilities to support research ranging from basic science to practical configurations. Dr. McDonell's recent research has focused on how low carbon and renewable fuels such as hydrogen and ammonia affect the performance and operation of combustion systems used in consumer appliances, industrial devices, and gas turbines. He has served as the Chair of ILASS-Americas and the President of ILASS-International. He is currently on the editorial board of the journals *Atomization and Sprays* and the *ASME Journal of Engineering for Gas Turbines and Power*.

Webinar

PERSPECTIVES ON "REFERENCE SPRAYS" FOR ALIGNING THE SPRAY COMMUNITY

Cold-flow spray researchers have an array of diagnostic tools to extract meaningful information on spray characteristics. The efficacy of many of these tools depends heavily on calibration, alignment, and human operation. This can lead to large discrepancies in data values for seemingly identical setups between research groups. The application of experimental data to numerical models is thereby hindered due to inconsistencies in results caused by experimental error. Previously, an attempt was made to produce a "standard spray" termed the "research simplex atomizer (RSA)". As manufacturing processes and diagnostic tools have improved, the research simplex atomizer has been revisited. In this webinar, the background behind the RSA is overviewed. In addition, example results from a new version of the RSA are presented. Such fundamental datasets captured from detailed test conditions can potentially provide benchmark data with the intention of other researchers testing the reproducibility of the results as well as validate CFD simulations. Preliminary findings between laboratories show good agreement in droplet size measurements and spray patterns. Such collaborations generate thought exercises when trying to explain differences between diagnostics intending to provide the same information about the spray. Finally, outlook for additional varieties of reference sprays is provided.